Figure 1

Figure 2A

```
 M   S   D   K   K   G   V   P   A   R   E   L   P   E   T   P   S   W   A   V
ATGTCGGACAAAAAAGGGGTGCCGGCGCGGGAGCTGCCGGAGACGCCGTCGTGGGCGGTG        60

 A   V   V   F   A   A   M   V   L   V   S   V   L   M   E   H   G   L   H   K
GCGGTGGTCTTCGCCGCCATGGTGCTCGTGTCCGTCCTCATGGAACACGGCCTCCACAAG       120

 L   G   H   W   F   Q   H   R   H   K   K   A   L   W   E   A   L   E   K   M
CTCGGCCATTGGTTCCAGCACCGGCACAAGAAGGCCCTGTGGGAGGCGCTGGAGAAGATG       180

 K   A   E   L   M   L   V   G   F   I   S   L   L   L   I   V   T   Q   D   P
AAGGCGGAGCTCATGCTGGTGGGCTTCATATCCCTGCTCCTCATCGTCACGCAGGACCCC       240

 I   I   A   K   I   C   I   S   E   D   A   A   D   V   M   W   P   C   K   R
ATCATCGCCAAGATATGCATCTCCGAGGATGCCGCCGACGTCATGTGGCCCTGCAAGCGC       300

 G   T   E   G   R   K   P   S   K   Y   V   D   Y   C   P   E   G   K   V   A
GGCACCGAGGGCCGCAAGCCCAGCAAGTACGTTGACTACTGCCCGGAGGGCAAGGTGGCG       360

 L   M   S   T   G   S   L   H   Q   L   H   V   F   I   F   V   L   A   V   F
CTCATGTCCACGGGCAGCTTGCACCAGCTGCACGTCTTCATCTTCGTGCTCGCGGTCTTC       420

 H   V   T   Y   S   V   I   T   I   A   L   S   R   L   K   M   R   T   W   K
CATGTCACCTACAGCGTCATCACCATAGCTCTAAGCCGTCTCAAAATGAGAACATGGAAG       480

 K   W   E   T   T   T   S   L   E   Y   Q   F   A   N   D   P   A   R   F
AAATGGGAGACAGAGACCACCTCCTTGGAATACCAGTTCGCAAATGATCCTGCACGGTTC       540

 R   F   T   H   Q   T   S   F   V   K   R   H   L   G   L   S   S   T   P   G
CGGTTCACGCACCAGACGTCGTTCGTGAAGCGCCACCTGGGCCTCTCCAGCACCCCTGGC       600

 I   R   W   V   V   A   F   F   R   Q   F   F   R   S   V   T   K   V   D   Y
ATCAGATGGGTGGTGGCCTTCTTCAGGCAGTTCTTCAGGTCAGTCACCAAGGTGGACTAC       660

 L   T   L   R   A   G   F   I   N   A   H   L   S   Q   N   S   K   F   D   F
CTGACCTTGAGGGCAGGCTTCATCAACGCGCATTTGTCGCAAAACAGCAAGTTCGACTTC       720

 H   K   Y   I   K   R   S   M   E   D   D   F   K   V   V   V   G   I   S   L
CACAAGTACATCAAGAGGTCGATGGAGGACGACTTCAAGGTCGTCGTCGGCATCAGCCTC       780

 P   L   W   G   V   A   I   L   T   L   F   L   D   I   N   G   V   G   T   L
CCGCTGTGGGGTGTGGCGATCCTCACCCTCTTCCTTGACATCAATGGGGTTGGCACGCTC       840

 I   W   I   S   F   I   P   L   V   I   L   L   C   V   G   T   K   L   E   M
ATCTGGATTTCTTTCATCCCTCTCGTGATCCTCTTGTGTGTTGGAACCAAGCTGGAGATG       900

 I   I   M   E   M   A   L   E   I   Q   D   R   A   S   V   I   K   G   A   P
ATCATCATGGAGATGGCCCTGGAGATCCAGGACCGGGCGAGCGTCATCAAGGGGGCCCCC       960

 V   V   E   P   S   N   K   F   F   W   F   H   R   P   D   W   V   L   F   F
GTGGTCGAGCCCAGCAACAAGTTCTTCTGGTTCCACCGCCCCGACTGGGTCCTCTTCTTC      1020

 I   H   L   T   L   F   Q   N   A   F   Q   M   A   H   F   V   W   T   V   A
ATACACCTGACGTTGTTCCAGAACGCGTTTCAGATGGCGCATTTTGTGTGGACAGTGGCC      1080

 T   P   G   L   K   K   C   Y   H   T   Q   I   G   L   S   I   M   K   V   V
ACGCCCGGCTTGAAGAAATGCTACCACACGCAGATCGGGCTGAGCATCATGAAGGTGGTG      1140

 V   G   L   A   L   Q   F   L   C   S   Y   M   T   F   P   L   Y   A   L   V
GTGGGGCTAGCTCTCCAGTTCCTCTGCAGCTATATGACCTTCCCCCTCTACGCGCTCGTC      1200

 T   Q   M   G   S   N   M   K   R   S   I   F   D   E   Q   T   S   K   A   L
ACACAGATGGGATCAAACATGAAGAGGTCCATCTTCGACGAGCAGACGTCCAAGGCGCTC      1260
```

Figure 2B

```
 T   N   W   R   N   T   A   K   E   K   K   K   V   R   D   T   D   M   L   M
ACCAACTGGCGGAACACGGCCAAGGAGAAGAAGAAAGTCCGAGACACGGACATGCTGATG        1320


 A   Q   M   I   G   D   A   T   P   S   R   G   S   S   P   M   P   S   R   G
GCTCAGATGATCGGCGACGCAACACCGAGCCGAGGCTCGTCGCCGATGCCGAGCCGGGGC        1380


 S   S   P   V   H   L   L   H   K   G   M   G   R   S   D   D   P   Q   S   A
TCATCACCCGTGCACCTGCTTCACAAGGGCATGGGGCGGTCGGACGACCCCCAGAGCGCG        1440


 P   T   S   P   R   T   Q   Q   E   A   R   D   M   Y   P   V   V   V   A   H
CCCACCTCGCCAAGGACCCAGCAGGAGGCTAGGGACATGTACCCGGTTGTGGTGGCGCAC        1500


 P   V   H   R   L   N   P   N   D   R   R   R   S   A   S   S   S   A   L   E
CCGGTGCACAGACTAAATCCTAACGACAGGAGGAGGTCCGCCTCGTCGTCGGCCCTCGAA        1560


 A   D   I   P   S   A   D   F   S   F   S   Q   G   *
GCCGACATCCCCAGTGCAGATTTTTCCTTCAGCCAGGGATGA        1602
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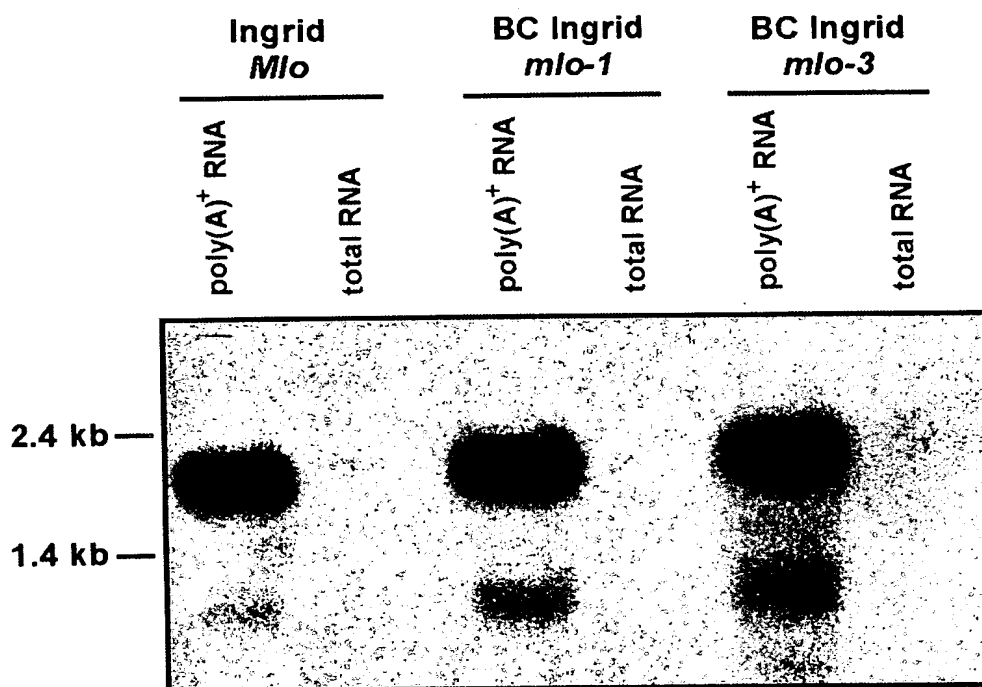
Figure 3

Figure 4B

Haisa mlo-1 x Carlsberg II mlo-5

Figure 4A

Carlsberg II mlo-8 x Haisa mlo-1
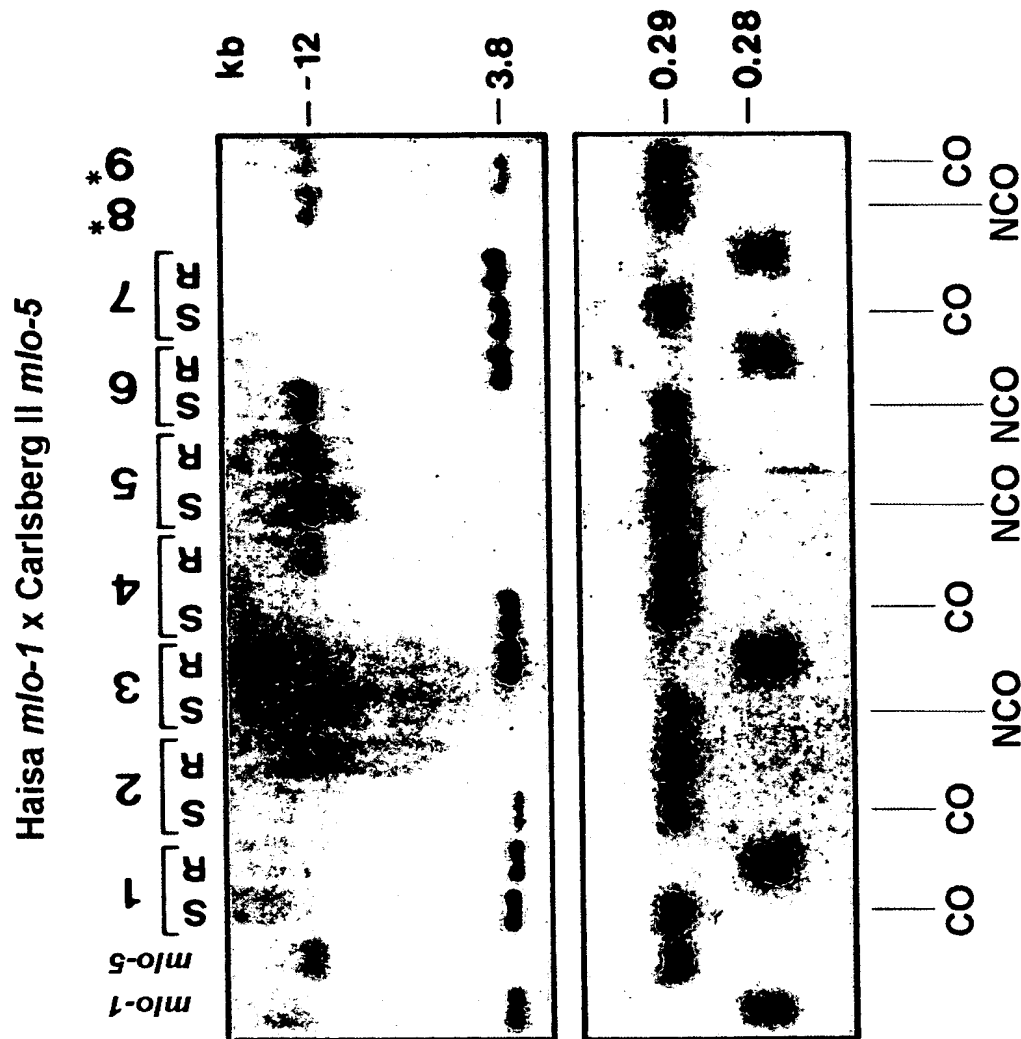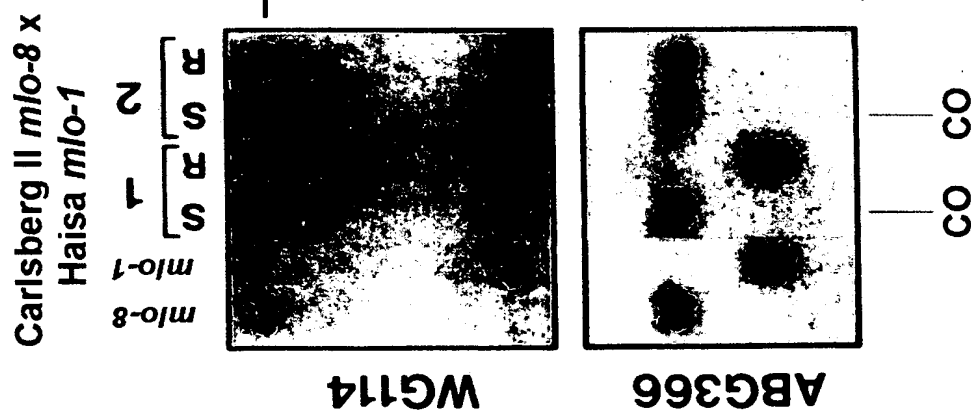
Figure 5A

```
292 GCGGAGCTCATGCTGGTGGGCTTCATATCCCTGCTCCTCATCGTCACGCA 341
    || :||||| |||||||  ||||||||||:|||||||| |||| ||| | ||
 80 GCANAGCTGATGCTGCTGGGCTTCATNTCCCTGCTTCTCACCGTGGCACA 129

342 GGACCCCATCATCGCCAAGATATGCATCTCCGAGGATGCCGCCGACGTCA 391
    || ||    |||| ||||:|| |||||| || ||   || ||| || ||
130 GGCGCC...CATCTCCAANATCTGCATCCCCAAGTCGGCTGCCAACATCT 176

392 TGTGGCCCTGCAAGCGCGGCACCGAGGGCCGC.AAGCCCAGCAAGTACGT 440
    ||| ||| ||||||  ||| : || | |  ||| :|  || | ||
177 TGTTGCCGTGCAAGGCAGGCCNAGATGCCATCGAAGAANAAGCAGCAAGT 226

441 TGACTACTGCCCGGAGGTGAGCAGCAGAGCCCGGACCAGCAGCTTCACGA 490
    | |: |:| ||   ||   ||   | | | | || |  | ||| :|
227 GGTCNCCNGTCC.TTGGCCGGCGCCGGCGGCGGGGACTACTGCTCNAAAT 275

491 TGATGAAGAAATCAATACC...........GAACTTTTTCTTGTTTTCT 528
    |    || | || :||       | ||    || : : :
276 TCGATGTGAGAATAACNCCAGCTGCCGGCAAGCACAACCTCGATNCNATN 325

529 TCTGATTGTCGTCTTGGCTTGGCTTAATTGGTGTGTGTGTGTGTGTTTGC 578
    ||:|||    |   |||||| | | | | | | || |||
326 ACTNATT..........TAACTATAATTGATTTTTCTTGGGTTTTCTGC 364

579 AGGGCAAGGTGGCGCTCATGTCCACGGGCAGCTTGCACCAGCTGCACGTC 628
    ||||||||||||||||| |||||| |  ||| ||||||||||||||| |
365 AGGGCAAGGTGGCGCTGATGTCGGCAAAGAGCATGCACCAGCTGCACATT 414

629 TTCATCTTCGTGCTCGCGGTCTTCCATGTCACCTACAGCGTCATCACCAT 678
    ||||||||||||||||| || ||||||||| |||||| || |||||||||
415 TTCATCTTCGTGCTCGCCGTGTTCCATGTTACCTACTGCATCATCACCAT 464

579 AGCTCTAAGCCGTCTCAAAGTGAGCCTTTGCTTCT.....TCTTCTTCTT 723
    | | || || |||||||||| | | |||| || | | |
465 GGGTTTAGGGCGCCTCAAAGTGAGTTTGTCGTTCTGTCCCTCATGCACAT 514

724 CTTTTACC.......GCACGTCTGTCTGTCAGGCGTACCTACCTGTTCA 765
    |||| |    |||  : |||| ||| | | | |  |||
515 GTTTTCTCTAGTTCTAGCAANATTGTCAGTCCTTCAAATGGATTGTTTCG 564

766 TCAGGCTTGAGTAAAACTGTTCCATAATCTGC........TCCGGCATAA 807
    ||    || || | ||  |||| |||    | ||||
565 ACA......AGAAACCCAATTTATTAATTTGCCAGTTAAATATATAATAA 608

808 TCCTCTCCTCCTG....CAGATGAGAACATGGAAGAAATGGGAGACAGAG 853
    |      || ||   ||||||  | |||||||||| |||||| || ||
609 TTGATCTTTCTTGGTTTTAGATGAAGAAATGGAAGAAGTGGGAGTCACAG 658

854 ACCACCTCCTTGGAATACCAGTTCGCAAATGGTCAGGATCCCCCACTCTG 903
    |||| ||| ||||| || |||||||||| ||| |  | |
659 ACCAACTCATTGGAGTATCAGTTCGCAATCGGTAGTG.......AATTAA 701

904 CAATCTCCC...CTTCTTCGAAACCAAACC....TGATGATCCATTTAAA 946
    ||||||||    || |||  | ||||    |||| ||   || |||
702 GAATCTCCCTAACTATTTCATTTCAGAACCTTTATGATAATGTCTTGAAA 751

947 GACGCAGGCACGATCAGAGTGAGTGAACTGATGTATGTTCATTTTTTGTG 996
    || | | |    ||||| ||| |   | |||| |
752 GAGGAGGAGCAAATCAG.CTGAAAAATATGATCGA............... 785

997 TCCTTTCAGATCCTGCACGGTTCCGGTTCACGCACCAGACGTCGTTCGTG 1046
    ||| | |||||||||| |||| ||| |||||||||||| ||||||||||||
786 TCCATGCAGATCCTTCACGATTCAGGTTCACGCATCAGACGTCGTTCGTG 835
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Inventor: SCHULZE-LEFERT
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Atty. Dkt.: 620-125

Figure 5B
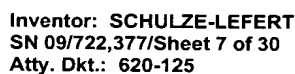
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1047 AAGCGCCACCTGGG....CCTCTCCAGCACCCCTGGCATCAGATGGGTGGT 1093
     !!!!! !! !!!!!    !!!! !!!!!!!!!!! !!!!!!!! ! !!
 836 AAGCGGCATCTGGGATCATTCTCAAGCACCCCTGGGCTCAGATGGATCGT 885

1094 GAGTTTTTTAGCTTCTTATCTGCCCCTCATCTGTGTGTAATGTT...... 1137
     !!!!! ! !! !! !!     !!! ! ! !!
 886 GAGTTATCAATCTCCGAAT.......ACATGCTTGTTTTTATTCTTGCA 928

1138 ..TGGCGTA..........TGGAGTCAGGTGATTT.........ACCTT 1165
      !!!! !!          ! ! !! ! !!!        !  !
 929 ACTGGCCTAGCTGTTCCAATTCAATCCATATTTTTGAAAAAAAAAATAT 978

1166 GCCTGTGATGTTTGTTGCCTTGTCAGGTGGCCTTCTTCAGGCAGTTCTTC 1215
     ! !! !!!!!!    !!!! !!!! !! !!!!!!!!!!!!!!!!!!
 979 TCATGCCGTGTTTG.....TTGTTAGGTAGCATTCTTCAGGCAGTTCTTT 1023

1216 AGGTCAGTCACCAAGGTGGACTACCTGACCTTGAGGGCAGGCTTCATCAA 1265
     !!!! !!!!!!!!!!!!!!!!!!!!!!!!!! !! !! !!!!!!!!!!!!
1024 GGGTCCGTCACCAAGGTGGACTACCTGACCATGCGGCAAGGCTTCATCAA 1073

1266 CGTACGTGC.....CTCCCCTTCTAGCTCCGCCATTGCTGCCGCGATGTAG 1311
     !!! ! ! !   !  !!!   ! ! !!!!! !! !! ! !!
1074 TGTATACTAATCAAACCTGACCAATTCAACATTGATGATGC.AAACAG 1122

1312 CAGCAAAGCTTCT.......CAAGTTATCCTTCTGACGCTAAAGTTCCCA 1354
     !! !! !! !    ! !!!! ! ! ! !!! ! !!! !
1123 AAGACCAGGTTTTTTTTTTCCGAGTTGTGCAT.TGAAGTTAATG...... 1165

1355 TGTTTTTTCCTCAAATTATTCTGCGCAGGCG.CATTTGTCGCAAAACAGC 1403
     !!!!! !!! !! !   !!!!!!!! !!!!!!!!!! !! !!!
1166 .GTTTTAGCTTC...TTCTCTTTTGCAGGCGCCATTTGTCGCAGAATAGC 1211

1404 AAGTTCGACTTCCACAAGTACATCAAGAGGTCGATGGAGGACGACTTCAA 1453
     !!!!!!!!!!!!!!!!!!!! !!!!!!!!!!!!! !!!!!!!!!!!!!!!!
1212 AAGTTCGACTTCCACAAATACATCAAGAGGTCTTTGGAGGACGACTTCAA 1261

1454 GGTCGTCGTCGGCATCAGGTACGTTCCATTCCTTCCTCTGCACCACACCA 1503
     !! !!!!!! !!!!!!!!!! !!    !!!! !! !
1262 AGTTGTCGTTGGCATCAGGTCCG......TCCTCGCTTT........... 1294

1504 CACCCCATGGATAGATTTTAACAATTGCTGTCAGGTTCCACATGATAACA 1553
                !! !!! !! !  !! ! ! !!! !!!! !
1295 .........ATTAATTATAGGA....CTCTTATATTCAACATTTTTTT 1330

1554 ATATACTATGA.ACTTGGTCTTTGCTCCTTGTCCTTG.....CACGATCA 1597
     !!! ! ! ! ! !! !!!! ! !!!! !! !!!!
1331 ATAAAGAAACATATTTAGTCT...CCAGTTGTGTATGTGTATGTGGATCT 1377

1598 TGACACATTTGGCCTGTTTTCGCAGCCTCCCGCTGTGGGGTGTGGCGATC 1647
     !!!!!!!!!!!!! !!! !!! !!!!!!!!!! !!!!!!! !! ! !!!
1378 TGACACATTTGG.CTGGTTTTGCAGCCTCCCTCTGTGGTTCGTCGGAATC 1426

1648 CTCACCCTCTTCCTTGACATCAATGGTATGGACCTTCTCCTCTCCGGTTT 1697
     !! !!!!!!!!! !! !!!!! ! !!!!    !!!! !!!!    !!!
1427 CTTGTACTCTTCCTCGATATCCACGGTA..ATCCTTGTCCT.....ATTT 1469

1698 CTCTATTGCTTTGCAGCTAAATAAAACACTTGCAATTCGTCTCGTGATCA 1747
     ! ! !! !!! !! !! ! ! !!!! !!!! ! !!!!
1470 CATTCTTTTTTTTACTCTCAAAACCTTGTTCTGAATTGGTCTTATAATCA 1519

1748 CCGCTCATTTTTCAACCATTTCTTTTTCTACTCATAGGGGTTGGCACGCT 1797
     !! !!!!!!! ! ! !! !!! ! ! !!!! !!!!!!! !!
1520 CCATCGATTTTTTTTCAACTT.TTTCCCCGCGTGTAGGTCTTGGCACACT 1568

1798 CATCTGGATTTCTTTCATCCCTCTCGTGGTAAGTGC.AGATTCTCC.AT 1845
     !! !!!!!! !!!!! ! !!!!!!! ! !!!!! !! ! !!!!! !! !
1569 TATTTGGATCTCTTTTGTTCCTCTCATCGTAAGAGCGAAATTTCCCCTGT 1618
```

Figure 5C

```
1846 CGAAAGCAACAGCAAACCCAATT......v-........TGATCGCAAT 1878
     I IIIII IIIII  III IIII             I II  III
1619 CCAAAGAAACAGTTAACATAATTAATTATGCTTTAATTTATCATGAAAAT 1668

1879 GGAAACCCACACCTAATATTAACTCAAAATGTCAATTGTCGGTGCGTCTT 1928
      I I   II III         IIII  III III  III I
1669 TAATATGATCATATAACTAATGAACAAACATTCA..TGTGAATGCCACCG 1716

1929 CCTCAACAGATCCTCTTGTGTGTTGGAACCAAGCTGGAGATGATCATCAT 1978
         IIIIII IIIIII IIIII IIIIIIII IIIIII I IIIII
1717 TTGTCTCAGATCGTCTTGTTAGTTGGGACCAAGCTAGAGATGGTGATCAT 1766

1979 GGAGATGGCCCTGGAGATCCAGGACCGGGCGAGCGTCATCAAGGGGGCCC 2028
     IIIIIIIIII IIIII IIIIII IIII I  II III IIII II I
1767 GGAGATGGCCCAAGAGATACAGGACAGGGCCACTGTGATCCAGGGAGCAC 1816

2029 CCGTGGTCGAGCCCAGCAACAAGTTCTTCTGGTTCCACCGCCCCGACTGG 2078
      I  IIII II II IIIIIIIIIII IIIIIIIII IIIIIII IIIIII
1817 CTATGGTTGAACCAAGCAACAAGTACTTCTGGTTCAACCGCCCTGACTGG 1866

2079 GTCCTCTTCTTCATACACCTGACGTTGTT.................. 2107
     III I IIIIIIIIIIIIIIIII I II
1867 GTCTTGTTCTTCATACACCTGACACTCTTCCCATGTACATGTTTAAAACC 1916

                           .          .
                           .          .
                           .          .

2108 ...................CCAGAACGC.GTTTCAGATGGCGCATTTTG 2136
                       IIIIIIIII IIIIIIIIIIIIIIIIIIIII I
2017 GACGGACGGATCGATCATCACCAGAACGCATTTTCAGATGGCGCATTTCG 2066

2137 TGTGGACAGTG....GTACGCCAC.........CGATGAACTTGTCAGTT 2173
     I IIIII II    III II II        I II  II IIIIII
2067 TATGGACTATGGTGTGTATGCTACTTGCTTAGTTGTTGCCATTATCAGTT 2116

2174 .......AACATGGGTGTCA...AGGCACCGAGTGCCGCTGATGA..... 2208
            II I IIII I  I IIII II    II IIII
2117 CTTAAGCAAATTAAGTGTGATGCATGCACTGA......CTAATGAGACAA 2160

2209 ........ACTGCTCTGACGGAGATTTACTTGTGTTGT.......AGGCC 2243
             II III    I   III I IIII IIII     IIII
2161 AAAATGACACAGCTTGTTCATCGATCTGGTTGTTTTGTGTGTGACAGGCA 2210

2244 ACGCCCGGCTTGAAGAAATGCTACCACACGCAGATCGGGCTGAGCATCAT 2293
     II II II IIIIIIIIIIIII III     I II IIIIIIIIIII I
2211 ACACCTGGTCTGAAGAAATGCTTCCATGAAAATATTTGGCTGAGCATCGT 2260

2294 GAAGGTGGTGGTGGGGCTAGCTCTCCAGTTCCTCTGCAGCTATATGACCT 2343
     I I II I IIIIIII  IIII III I II IIIIIIII II IIII
2261 GGAAGTCATTGTGGGGATCTCTCTTCAGGTGCTATGCAGCTACATCACCT 2310

2344 TCCCCCTCTACGCGCTCGTCACACAGGTAATAAAACCGTCCAGGAA 2389
     IIII IIIIIIIIIIIIIIIIIIIIIIIIIII I  II II I III  II
2311 TCCCGCTCTACGCGCTCGTCACACAGGTGAACAAGCCATTCACAAA 2356
```

Figure 6A

```
295 GAGCTCATGCTGGTGGGCTTCATATCCCTGCTCCTCATCGTCACGCAGGA 344
    ||||||:|||||||||||||||||||||||||||||||||||||||||||
  1 GAGCTCNTGCTGGTGGGCTTCATATCCCTGCTCCTCATCGTCACGCAGGA  50

345 CCCCATCATCGCCAAGATATGCATCTCCGAGGATGCCGCCGACGTCATGT 394
    ||   | || ||| ||| ||||||||| |||| |||| |||:  :|||
 51 TCC...CGTCTCCAGGATCTGCATCTCCAAGGAGGCCGGCGANAANATGC  97

395 GGCCCTGCAAG......CGCGGCACCGAGGGCCGCAAGCCCA........ 430
    || ||||||     :  |||| ||| || |||| ||
 98 TCCCGTGCAAGCCTTACNACGGCGCCGGCGGTGGCAAAGGCAATGACAAT 147

431 ..........................GCAAGTACGTTGACTACTGCCCGGA 455
                             || |:  || :  | || ||| |
148 CACCGGAGGCTTCTCTGGCTCCAAGGCGANAGCGANACCCACCGCCGGTT 197

456 GGTGAGCAGCAGAGCCCGGACCAG.................. 479
    || || ||   | |||||:  |
198 CCTG.GCTGCCCCGGCCGGANTGGACGTCTGCGCCAAACAGGTGAGCACC 246

480 CAGCTTCACGATGATGAAGAAA.TCAATACCGAACTTTTTCTTGTTTTCT 528
    |:| ||:| | |   | ||| | : || |||| |   | || ||
247 TANCGTCNCCACAAACCACAAACTANCTAATGAGCATGGACCTGAATTTC 296

529 TCTGATTGTCGTCTTGGCTTGGCTTAATTGGTGTGTGTGTGTGTGTTTGC 578
    |     || | |  ||||||||||| || |||||||          | |||
297 TTCTCTTCTTGGCTTGGCTTGACTAAATTGGT.............TGTGC 333

579 AGGGCAAGGTGGCGCTCATGTCCACGGGCAGCTTGCACCAGCTGCACGTC 628
    | ||||||||||||| |||||::|||| |:| ||||||| |||||| |
334 ACGGCAAGGTGGCGCTGATGTCNNCGGGAANCATGCACCAACTGCACATA 383

629 TTCATCTTCGTGCTCGCGGTCTTCCATGTCACCTACAGCGTCATCACCAT 678
    ||||||||||||||||| |||||||| ||||      |||||||| |||||||
384 TTCATCTTCGTGCTCGCCGTCTTCCACGTCTTGTACAGCGTCGTCACCAT 433

679 AGCTCTAAGCCGTCTCAAAGTGAGCCTTTGCTTCTTCTTCTTCTTCTTTT 728
    |  |||||||||||||||||||||| |         ||
434 GACCCTAAGCCGTCTCAAAGTGAGCATCATACTC................ 467

729 ACCGCACGTCTGTCTGTCAGGCGTACCTACCTGTTCATCAGGCTTGAGTA 778
         |||| |||||   | | |   |||     | |     |
468 ......GAGCTGTTTGTCAATAATCCTT...GGTTTCCAATCCAATTCCA 508

779 AAACTGTTCCATAATCTGCTCCGGCATAATCCTCTCCTCCTGCAGATGAG 828
    || ||| | | | ||||||||             | ||||||||||||
509 AAGCTGGCACTGATCCTGCTCCGG...........CTTCCTGCAGATGAA 547

829 AACATGGAAGAAATGGGAGACAGAGACCACCTCCTTGGAATACCAGTTCG 878
    ||||||||| ||||||| | |||||| |||| |||| || |||||||
548 GCAATGGAAGAAGTGGGAGTCGGAGACCGCCTCGCTGGAGTATCAGTTCG 597

879 CAAATGGTCAGGATCCCCCACTCTGCAATCTCCCCTTCTTCGAAACCAAA 928
    | |||||||||              || |  | ||| |   |||
598 CGAATGGTCAG.................CTTCAACTTTTCTTACTGAAA 629

929 CCTGATGATCCATTT...AAAGACGCAGGCACGATCA.....GAGTGAGT 970
    || ||||   |||||   | | |||||| |||||||||      | | ||
630 CCGGATG...CATTTACAACAAACGCACGCACGATCAATCATCACAGTGT 676

971 GAACTGAT.GTATGTTCATTTTTTGTGTCCT.TTCAGATCC..TGCACGG 1016
    || | ||| ||  |   || | |   |||| |||||||      ||| |
677 GAGCCGATACGTTGAACCCGATTGAAATCCTCCGCAGATCCCATCGCCGG 726
```

Figure 6B

```
1017 TTCCGGTTCACGCACCAGACGTCGTT.CGTGAAGCGCCACCTGGGCCTCT 1065
      I IIIIIIIIIIIIIIIIIII IIII IIII III IIIIIIIIIII
 727 TGCCGGTTCACGCACCAGACGACGTTGGGTGAGGCGGCACCTGGGCCTCT 776

1066 CCAGCACCCCTGGCATCAGATGGGTGGTGAGTTTTTTAGCTTCTTATCTG 1115
      IIIIIIIIIII III IIIIIIIIIII
 777 CCAGCACCCCCGGCGTCAGATGGGT.................. 801


1166 GCCTGTGATGTTTGTTGCCTTGTCAGGTGGCCTTCTTCAGGCAGTTCTTC 1215
                         IIIIIIIIIIIIIIIIIIIIIIIIIII
 802 ...................GGTGGCCTTCTTCAGGCAGTTCTTC 826

1216 AGGTCAGTCACCAAGGTGGACTACCTGACCTTGAGGGCAGGCTTCATCAA 1265
      I III II IIIIIIIIIIIIIIIIIIIIIIIIIII II IIIIIIIIIII
 827 ACGTCGGTGACCAAGGTGGACTACCTGACCTTGCGGCAGGGCTTCATCAA 876

1266 CGTACGTGCCTCCCCTTCTAGCTCCGCCATTGCTGCCGCGATGTAGCAGC 1315
      I
 877 C......................................... 877



1366 CAAATTATTCTGCGCAGGCGCATTTGTCGCAAAACAGCAAGTTCGACTTC 1415
                      IIIIII I IIIII II II IIIIIIIII
 878 ..................GCGCATCTCTCGCAGGGCAACAGGTTCGACTTC 910

1416 CACAAGTACATCAAGAGGTCGATGGAGGACGACTTCAAGGTCGTCGTCGG 1465
      IIIIIIIIIIIIIIIIIIIIIIII IIIIIIIIIIIIIIIII IIIIIIIII I
 911 CACAAGTACATCAAGAGGTCGTTGGAGGACGACTTCAAAGTCGTCGTCCG 960

1466 CATCAGGTACGTTCCATTCCTTCCTCTGCAC.........CACACCACAC 1506
      IIIIIIIIIII IIIIIIIIII IIIIIIII II I III
 961 CATCAGGTACGCGCCATTCCTTTCTCTGCACAAATTAATACATCCACCAC 1010

1507 CCCATGGATAGATTTTAACAATTGCTGTCAGGTTCCACATGATAACAATA 1556
      I III : IIIII II II : I:I II
1011 CACATANGTAGATAGATAGA...............TCGATANATANATTA 1045

1557 TACTATGAACTTGGTCTTTGCTCCTTGTCCTTGCACGATCATGACACATT 1606
      III I I I I II I IIII II I I IIII IIIIIIIII
1046 TAC.AAGTGCCGGTACGTACGTACGTCTCAT...ATGATCTTGACACATC 1091

1607 TGGCCTGTTTTCGCAGCCTCCCGCTGTGGGGTGTGGCGATCCTCACCCTC 1656
      II III II IIII III III III IIIIII IIIIII IIII
1092 TGTCCTCTTGCCGCAATCTCAAGCTCTGGTTCGTGGCGGTCCTCATCCTC 1141

1657 TTCCTTGACATCAATGGTATGGACCTTCTCC.TCTCCGGTTTCTCTATTG 1705
      IIIIIIII II I IIII IIII III I II I I I I
1142 TTCCTTGATTTCGACGGTAGCCGCCTTGTCCATGCCCTGCTCGCCCTCTC 1191

1706 CTTTGCAGCTAAATAAAACACTTGCAATTCGTCTCGTGATCACCGCTCAT 1755
      II II II II II II II I III IIII II
1192 CTCCGCTTCTCTCCATAATTTGTG.AACTTGTCCCGT..........AT 1229

1756 TTTTCAACCATTTCTTTTTCTACTCATAGGGG.TTGGCACGCTCATCTGG 1804
      I I II I I III III IIIII I IIIII II IIIII
1230 ATAACCACACCACCGTCGTCTTCTCGCAGGGGATCGGCACTCTTCTCTGG 1279

1805 ATTTCTTTCATCCCTCTCGTGGTAAGTGCAGATTTCTCCATCGAAAGCAA 1854
      II II I IIIIIIIIIIIIII II I III II I
1280 ATGTCCGTGGTTCCTCTCGTGGTAAGTCCA.......CAATTTGAATAGA 1322

1855 CAGCAAACCCAATTTGATCGCAATGGAAACCCACACCTAATATTAACTCA 1904
      II I IIIIII I I I I III II III I I
1323 CAACCTGTCCAATTGTGATGTACAGTACCTCCAAACTTAA.......TTA 1365
```

Figure 6C
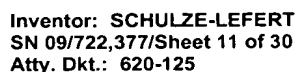
```
1905 AAATGTCAATTGTCGGTGCGTCTTCC.....TCAACAGATCCTCTTGTGT 1949
     | |||||| ||| | |  |||||  |     ||  ||||||||||||
1366 ACATGTCATTTGCTGAT..GTCTTGCGTGTAACATTAGATCCTCTTGTGG 1413

1950 GTTGGAACCAAGCTGGAGATGATCATCATGGAGATGGCCCTGGAGATCCA 1999
     |||||  |||||||||||||||||| | ||||||||||||||| |||:|||||
1414 GTTGGGACCAAGCTGGAGATGGTGATCATGGAGATGGCCCAGGANATCCA 1463

2000 GGACCGGGCGAGCGTCATCAAGGGGGCCCCCGTGGTCGAGCCCAGCAACA 2049
     ||||||| ||||||| ||||||| || ||||  |||||||||||||||||
1464 TGACCGGGAGAGCGTCGTCAAGGGTGCTCCCGCCGTCGAGCCCAGCAACA 1513

2050 AGTTCTTCTGGTTCCACCGCCCCGACTGGGTCCTCTTCTTCATACACCTG 2099
     ||| ||||||||||| |||| || |||||||||||||| |||| ||||||
1514 AGTACTTCTGGTTCAACCGGCCTGACTGGGTCCTCTTCCTCATGCACCTC 1563

2100 ACGTTGTTCCAGAACGCGTTTCAGATGGCGCATTTTGTGTGGACAGTGGT 2149
     || | |||||||||||||||||||||||||| ||||| ||||||||||||
1564 ACACTCTTCCAGAACGCGTTTCAGATGGCTCATTTCGTGTGGACAGTGGT 1613

2150 ACGCCACCGATGAACTTGTCAGTTAACATGGG.................. 2181
     |  |:  | | |||||||| || || | :|
1614 A...CNTACAAGTACTTGTCACTTCACTTANGCTAACTCCAACAAACGAA 1660

                          .
                          .
                          .

2182 ........TGTCAAGGCACCGAGTGCCGCTGATGAACTGCTCTGACGGAG 2223
             ||||  || || |  |        |  | |   || |
1711 GACACAAAACTCAATCCAACGCGCGGTAGCAAACGAACGTTTTTCCGTAC 1760

2224 ATTTAC.............................TTG 2232
     ||| |                              |||
1761 GTTTTCGTCCGCTTTCGCCCCATCCCAGCCCAAATTCGTTGACGTTGTTG 1810

2233 TGTTGTAGGCCACGCCCGGCTTGAAGAAATGCTACCACACGCAGATCGGG 2282
     | |  ||||||||||||||||||||||||||||||||||||  | | || |
1811 CATCGCAGGCCACGCCCGGCTTGAAGAAATGCTACCACGAGAAAATGGCA 1860

2283 CTGAGCATCATGAAGGTGGTGGTGGGGCTAGCTCTCCAGTTCCTCTGCAG 2332
     ||||||||   ||||| ||| ||||| ||||    |||| || | |||||
1861 ATGAGCATCGCCAAGGTCGTGCTGGGGGTAGCCGCCCAGATCTTGTGCAG 1910

2333 CTATATGACCTTCCCCCTCTACGCGCTCGTCACACAGGTAATAAAACCGT 2382
     :|| || ||||||||| ||:||||||||||||||
1911 NTACATCACCTTCCCGCTNTACGCGCTCGTCAC.................. 1943

                          .
                          .
                          .

2433 AATCATCTGTGTGTGCTGGCTTTGTATGCAGATGGGATCAAACATGAAGA 2482
                                    |||||||||| ||| ||||||||||
1944 ...........................GCAGATGGGCTCACACATGAAGA 1966

2483 GGTCCATCTTCGACGAGCAGACGTCCAAGGC.GCTCACCAACTGGCGGAA 2531
     |   ||:||||||||||||||||||| ||||||| ||| ||||||||||| ||
1967 GAAGCANCTTCGACGAGCAGACGGCCAAGGCGGCTGACCAACTGGCGAAA 2016

2532 CACGGCCAAGGAGAAGAAGAAAGTCCGAGACACGGACATGCTGATGGCTC 2581
     | |||||||||||||||||||||| | |||||||| ||| ||||||||||||| |
2017 GATGGCCAAGGAGAAGAAGAAGGCCCGAGACGCGGCCATGCTGATGGCGC 2066

2582 AGATGATCGGCGACGCAACACCGAGCCGAGGCTCGTCGCCGATGCCGAGC 2631
     |||||  |||||  ||| || ||||||     ||||:|||||||
2067 AGATGGGCGGCGGCGCGACGCCGAGCGTCGGCTNGTCGCCG......... 2107
```

Figure 6D

```
2632 CGGGGCTCATCACCCGTGCACCTGCTTCACAAGGGCATGGGGCGGTCGGA 2681
          ||||||||||| |||||||  |  ||  ||||||  ||
2108 ...............GTGCACCTGCTCCACAAGGCCGGGGCGCGGTCCGA 2142

2682 CGACCCCCAGAGCGCGCCCACCTCGCCAAGGACCCAGCAGGAGGCTAGGG 2731
          ||||||||||||||| |||   |  || ||  ||| ||  || ||||  |    |  |
2143 CGACCCCCAGAGCGTGCCGGCGTCCCCGAGGGCCGAGAAGGAAGGCGGCG 2192

2732 ACATGTACCCGGTTGTGGTGGCGCACCCGGTGCACAGACTAAATCCTAAC 2781
        |         |||   |||  ||||  || ||     ||  ||||
2193 GC...............GTGCAGCATCCGGCGCGCAAGGTACCTCCTTGT 2227

2782 GACAGGAGGAGGTCCGCCTCGTCGTCGGCCCTCGAAGCCGACATCCCCAG 2831
        |||  ||  ||||||| ||||||||| ||||  |||||  ||    |||||||||  |
2228 GACGGGTGGAGGTCGGCCTCGTCGCCGGCGCTCGACGCTCACATCCCCGG 2277

2832 TGCAGATTTTTCCTTCAGC..........CAGGGATGAGACAAGTTTCTG 2871
        ||||||||||  |||||||             |   |||  |||||||||  ||
2278 TGCAGATTTTGGCTTCAGCACGCAACGTTGACCGATCAGACAAGTTCCTT 2327

2872 TATT 2875
        |  ||
2328 TTTT 2331
```

Figure 7

```
                        GGCTGCTCCGCCAGCAAACCAGACACACAGCAGCGTACCTGCGT

              ACGTAGCGTGCGCTTTCTTTTTTTTCCTTTCGCCTCTCTTGCTTGCTCCGGCCGGCCACG

              TCGATAGCCGGCCACGGCCAGGCACCTCGCGGTTGCGTCGCGTGCATCTGCGTGTGCGTA

              CCTGGTAGAGGCGGCCGTCTGCTTGCTCCGGGCAAGGAAGGAGGTTGCGGCGGTCGACCG
```

M S D K K G V P A R E L P E T P S [W A V]	20
ATGTCGGACAAAAAAGGGGTGCCGGCGCGGGAGCTGCCGGAGACGCCGTCGTGGGCGGTG	60

helix I

[A V V F A A M V L V S V L M] E H G L H K	40
GCGGTGGTCTTCGCCGCCATGGTGCTCGTGTCCGTCCTCATGGAACACGGCCTCCACAAG	120

L G H W F Q H R H K K A L W E A L E K M	60
CTCGGCCATTGGTTCCAGCACCGGCACAAGAAGGCCCTGTGGGAGGCGCTGGAGAAGATG	180

K A E [L M L V G F I S L L L I V T Q D P]	80
AAGGCGGAGCTCATGCTGGTGGGCTTCATATCCCTGCTCCTCATCGTCACGCAGGACCCC	240

helix II

[I I A K I C I S] E D A A D V M W P C K R	100
ATCATCGCCAAGATATGCATCTCCGAGGATGCCGCCGACGTCATGTGGCCCTGCAAGCGC	300

G T E G R K P S K Y V D Y C P E G K V A	120
GGCACCGAGGGCCGCAAGCCCAGCAAGTACGTTGACTACTGCCCGGAGGGCAAGGTGGCG	360

L M S T G S L H Q L H [V F I F V L A V F]	140
CTCATGTCCACGGGCAGCTTGCACCAGCTGCACGTCTTCATCTTCGTGCTCGCGGTCTTC	420

helix III

[H V T Y S V I T I A L] S R L K M R T W K	160
CATGTCACCTACAGCGTCATCACCATAGCTCTAAGCCGTCTCAAAATGAGAACATGGAAG	480

K W E T E T T S L E Y Q F A N D P A R F	180
AAATGGGAGACAGAGACCACCTCCTTGGAATACCAGTTCGCAAATGATCCTGCACGGTTC	540

R F T H Q T S F V K R H L G L S S T P G	200
CGGTTCACGCACCAGACGTCGTTCGTGAAGCGCCACCTGGGCCTCTCCAGCACCCCTGGC	600

I R W V V A F F R Q F F R S V T K V D Y	220
ATCAGATGGGTGGTGGCCTTCTTCAGGCAGTTCTTCAGGTCAGTCACCAAGGTGGACTAC	660

L T L R A G F I N A H L S Q N S K F D F	240
CTGACCTTGAGGGCAGGCTTCATCAACGCGCATTTGTCGCAAAACAGCAAGTTCGACTTC	720

H K Y I K R S M E D D F K [V V V G I S L]	260
CACAAGTACATCAAGAGGTCGATGGAGGACGACTTCAAGGTCGTCGTCGGCATCAGCCTC	780

helix IV

[P L W G V A I L T L F L] D I N G V G [T L]	280
CCGCTGTGGGGTGTGGCGATCCTCACCCTCTTCCTTGACATCAATGGGGTTGGCACGCTC	840

helix V

[I W I S F I P L V I L L C V G] T K L E M	300
ATCTGGATTTCTTTCATCCCTCTCGTGATCCTCTTGTGTGTTGGAACCAAGCTGGAGATG	900

I I M E M A L E I Q D R A S V I K G A P	320
ATCATCATGGAGATGGCCCTGGAGATCCAGGACCGGGCGAGCGTCATCAAGGGGGCCCCC	960

V V E P S N K F F W F H R P D W V L F F	340
GTGGTCGAGCCCAGCAACAAGTTCTTCTGGTTCCACCGCCCCGACTGGGTCCTCTTCTTC	1020

I H L T L F Q N A F Q M A H F V W T V A	360
ATACACCTGACGTTGTTCCAGAACGCGTTTCAGATGGCGCATTTTGTGTGGACAGTGGCC	1080

T P G L K K C Y H T Q I G L S I M K [V V]	380
ACGCCCGGCTTGAAGAAATGCTACCACACGCAGATCGGGCTGAGCATCATGAAGGTGGTG	1140

helix VI

[V G L A L Q F L C S Y M T F P L Y A L V]	400
GTGGGGCTAGCTCTCCAGTTCCTCTGCAGCTATATGACCTTCCCCCTCTACGCGCTCGTC	1200

[T] Q M G S N M K R S I F D E Q T S K A L	420
ACACAGATGGGGATCAAACATGAAGAGGTCCATCTTCGACGAGCAGACGTCCAAGGCGCTC	1260

T N W R N T A K E [K K K V R] D T D M L M	440
ACCAACTGGCGGAACACGGCCAAGGAGAAGAAGAAAGTCCGAGACACGGACATGCTGATG	1320

A Q M I G D A T P S R G S S P M P S R G	460
GCTCAGATGATCGGCGACGCAACACCGAGCCGAGGCTCGTCGCCGATGCCGAGCCGGGGC	1380

S S P V H L L H K G M G R S D D P Q S A	480
TCATCACCCGTGCACCTGCTTCACAAGGGCATGGGCGGTCGGACGACCCCCAGAGCGCG	1440

P T S P R T Q Q E A R D M Y P V V V A H	500
CCCACCTCGCCAAGGACCCAGCAGGAGGCTAGGGACATGTACCCGGTTGTGGTGGCGCAC	1500

P V H R L N P N D R R R S A S S S A L E	520
CCGGTGCACAGACTAAATCCTAACGACAGGAGGAGGTCCGCCTCGTCGTCGGCCCTCGAA	1560

A D I P S A D F S F S Q G *
GCCGACATCCCCAGTGCAGATTTTTCCTTCAGCCAGGGATGAGACAAGTTTCTGTATTCA

```
              TGTTAGTCCCAATGTATAGCCAACATAGGATGTGATGATTCGTACAATAAGAAATACAAT

              TTTTTACTGAGTC
```

Figure 8A

```
   1  GAATTCAATT AAGGACAACA ACGGATGATA GGCTTAAGCT AGAGAGGATT

  51  CATATGGATT AATTAACTGT ACTTAAGTTG AGGTAAAACT CTATCGATTG

 101  CTTTGGACAC CGGCTCTCCC ATGATCTGCC AAGTTGAGCC GGCCTACCTA

 151  ATTTTCTTCG AAAGCACACA ACAAACGAAG GTAACCACTA ATCTAGACAC

 201  CACGCCTAAG TTATCAATTA CTACTCTAGT CTCGCGTAGA AACTTCATTC

 251  TTTATGGAGA GTGCTAGTAC TAGAGTACTT AATATAATAG TAAGCGACAA

 301  ACCCACGACG ATGAGAATGT ACCTCACTTA CGTAAGTCAA TTAAGTCGAA

 351  AAGGAAATCT TGAACACTTA CTTTATTAAA GAAGTATTCC CCGAGGTACA

 401  GGAGAGGAGA GCACGCCAAT AACTCCAGCA CTCCTCCGAA ACCTTTCTCA

 451  CTCTCTACCC TTTTTCTCCA CACAACTAAA ATGATGTCTA ATGTATGAAA

 501  GTGAGTTGTA CTCTATTTTG TTGTGTGTTT GGAAGTGAAA TTAGCTCATC

 551  CTTTTATAGC AGCTTAATGG TCGGTTGTAG GTTGGTAGTT AAGTCGGTAA

 601  ACACTCACAA CCACCATCGT CAACCAATAG GAGATCGCCA CATGATCGAA

 651  AGCTGACAGT TAGGGGTGCC AACCCTGTTT TGTCCGAACC AAGCAAACAA

 701  CCTCTAGCTA GGACCTCTCT TCTATGTCTG ACAAGTCGGC CCATATGGCG

 751  GTGCACTATG GATTAGGTCA ATTTCAGTCG TTTTGGACTG TCATGTGGGC

 801  CCTTCCAATC CTTGTGCTCC CATATGATTG GTCGAAGGTA CATTTAATTC

 851  CTGGGTGAGT GCTAGAACTA ATATGATAGA TGTGCTCGGG CTCCTGGGAA

 901  AGAGGCCACT TGACATACTT GGGGTAGTGC CCCAAGGGTA TTCCCTATCG

 951  CTTTTTCATA ATTTTCTCTC TCCAAAATCG GACGGAAACA ATAAAAAAGA

1001  GAGGCGATGT TCATCGGCAA ATATCTATTT TTTTGATAGT GTCTTCCCTT

1051  AAAACTTGAT TTTTGCGAAG ACTTCCGGCT AAAACCATGA AATCAGAGTT

1101  CCTTGTAACA AATTTAATTT GCCTAAATAC AAAAAAGATC GAATGGAGAT

1151  AGCATTAAAC TTGCTCCATA CGAATCATAT TAGTTGGACC GTAACTCATA

1201  GAAAAAGTTG CAAGTTGGTT GACCTATCAA CCCTCTTATG TTGACCCGTA

1251  AACCCTGTTA TGCATTAAGG ATTAAGTACC CGGCAGATCG TCACTACTCA

1301  CGAATGCACA AATTTCCGGT ACGTAGGATG GGATGAGTTG GTCAGAAACG

1351  GGCTCACCAC GTCGCCCAAC CTGCCGCGAT CGAGCCATTG GCCGGCGATG

1401  CACGCGCTTT GACACAGCCG CCCGCCGCCC CCGGCCCGC CCCCGCTCTT
```

Figure 8B

```
1451   TAATAAAAAC CGGCCGCCCC CTGTCAAAGG TGTCAAAGTG TCAAGTGCAT

1501   CAGAGCTAAG CTAGCGGTCA CCCAGTCAGC TCACCCCGAG ACGCACCAGG

1551   GGATCTATCG GATCATGGCA GGTGGGAGAT CGGGATCGCG GGAGTTGCCG

1601   GAGACGCCGA CGTGGGCGGT GGCCGTCGTC TGCGCCGTCC TCGTGCTCGT

1651   CTCCGCCGCC ATGGAGCACG GCCTCCACAA CCTCAGCCAT GTACGCGCGC

1701   GCGCACGCGG TGTGCTCATC TCTCGAGTTA ATTTGGTTGT TGTTGTTGTT

1751   GTGTTCTTGT GACATCTCAA TTAACATCCG ATCCTGGTCG ATCGATCGCC

1801   CTGTGGTGGC GCTACTGCTT GCATTGCAGT GGTTCCGTAG GCGGCAGAAG

1851   AAGGCCATGG GCGACGCCCT CGACAAGATC AAAGCAGGTC ACCCTCAGCC

1901   TCAGCTCACC CTCAGCCTCC ATCTCTAAAT ATTTGACGCC GTTGACTTTT

1951   TTAAATATGT TTGACCATTC GTCTTATTTA AAAAATTTAA GTAATTATTA

2001   ATTCTTTTTC TACCATTTGA TTCATTGCTA AATATACTAT TATGTATACA

2051   TATAGTTTTA CATATTTCAC TAAAGTTTTT AAATAAGACG AATGGTCAAA

2101   CATGTTTAAA AAAGTCAACG GCGTCAAACA TTTAGGAAGA AGAGAATATT

2151   ATATTGCTGC TCCCCTCTAG CCACTTTGCT GCCTCCCTCG TCATTTTTTC

2201   AAGTATTTTA CGCAAGACTG GGTCCTCCAA ATCAAACGTC ACAAATAAGC

2251   CATTTATAGT TTCCTTTCGC TTTTTAAGGG GGGACTACTT GTATTTAATC

2301   ATGGAGGAAA CTACCAGTCG GATGTCCGAT TACTTAAAAA AAAATTCGGG

2351   GGACTAATTT TTTTGGCTGA TCATCGGTGA AATATTAGGT TATATATGTT

2401   GAAAAAAAAT CAGCCACAAA CAATGAAATA TTTTGTGAAA CACATATTAG

2451   ACACGTTGAA ACGTATCATT GTTACGTATA AAACATCGAA TGTTAACAGA

2501   TTAAAACATA TGTTTTTTTT TAATCAGAAT ATAATCATGC GATATATTAT

2551   TGTAAAGATA TAATTACAAC GAATACAACA GTGCGATCGG ATTATATATA

2601   TATTAGTAGT TTAAGAGAAA AATCATTTTG AAGATTACTA GATACATACA

2651   CGTATAGATG GATGAAGTGG AGAGAGATTA GAGATAAGTA GTTATATGAA

2701   TTTTGTGAAA CACACTTAAG ACATATGTTC AAACATACTG CTATTATGTA

2751   TGAAATATTG AGTTTTAACG GTTAAAACA CATATTCTTT TAATTAGAAT

2801   GTAATAATGT GATATCTTGT TGTAAAATTT AATTACATCT AATATAACGG

2851   TGTGATTAGA TTGTATGTTG ATAACATGC CCATCGGTTG GCTTATTTAG

2901   GGAATAAGCC AAATGGTATA TTTGCAAACG AAAAATAATT TGTAAATAAA

2951   ACTTTTATGT ATGTATTCTT AACGATCTAG CAGCAAAGGC TGAAAAATAA

3001   ACTTCGATGA AAAATCTCAA AATCAACTCT TAAAATTTAA ATTTTGGCTT
```

Figure 8C

```
3051  ATAAGTATAG TTCCTAACTA GTTTAGAAGA AAAAATATTT AAAGCGGGGA

3101  AGAGGAAAAG GAATAAACTA ATAGCTAAAT TATTGCATGC ATGTAGCGAT

3151  TTGAGGACGA CCGAGTTGTT TTGTCTGGAT CAGCCGACCG AGACAGAGCA

3201  ATCTTCTTTA ATCATAAATA ACCAGAAAAA CCATACCAGT TCATCACAAT

3251  GGACCGAGTC AGAGTCATTA CATATTTTTC ATTGTTGCGC ACAGGATTCA

3301  CCATGTTCTT ATGGGAAATA TTTTTAACTC TCAAATGGTT ATGATTTTGA

3351  ACTCTCATTT TTGAGAGAGA ATTAACAAGC GAGCGAGCAA TCAGGCCAAA

3401  AAGGGAGAAA GAAAATTATT TTTGTTAATT TTTTTTTAAG GTAGGGTGGA

3451  GGAGTCATTA CATGATTTTT TTTTATATTC CCTCGTTGAT TATATGCTGT

3501  TCAAATGGTT ATGATTTTTT TAAAAGATAA CAACAATACA AATTAGTATG

3551  TGATAGATCA TTTCACGAGC ATATAGGATT AAATTTAACT TCTGTAAATT

3601  ACAAAACAAA CAAGTTTAAC TGTTAATATA CATTAAATTT GTTTTTTTCA

3651  ACTTAGGAAT TGAATTTTAT GTATATATTT GTAAATGAT ATATTAATTT

3701  ATTTTTTTAA AAAAATAATT ATTTAGATAA CACGCAAACT AGAAAACCAC

3751  CGCAGAAGTT CTCATATTTC TTGTCCTATC TGCACTTGCA GAGCTGATGC

3801  TGCTGGGCTT CATATCCCTG CTTCTCACCG TGGCACAGGC GCCCATCTCC

3851  AAGATCTGCA TCCCCAAGTC GGCTGCCAAC ATCTTGTTGC CGTGCAAGGC

3901  AGGCCAAGAT GCCATCGAAG AAGAAGCAGC AAGTGGTCGC CGGTCCTTGG

3951  CCGGCGCCGG CGGCGGGGAC TACTGCTCGA AATTCGATGT GAGAATAACA

4001  CCAGCTGCCG GCAAGCACAA CCTCGATGCA ATAACTAATT TAACTATAAT

4051  TGATTTTTCT TGGGTTTTCT GCAGGGCAAG GTGGCGCTGA TGTCGGCAAA

4101  GAGCATGCAC CAGCTGCACA TTTTCATCTT CGTGCTCGCC GTGTTCCATG

4151  TTACCTACTG CATCATCACC ATGGGTTTAG GGCGCCTCAA AGTGAGTTTG

4201  TCGTTCTGTC CCTCATGCAC ATGTTTTCTC TAGTTCTAGC AAGATTGTCA

4251  GTCCTTCAAA TGGATTGTTT CGACAAGAAA CCCAATTTAT TAATTTGCCA

4301  GTAAATATAT AATAATTGAT CTTTCTTGGT TTTAGATGAA GAAATGGAAG

4351  AAGTGGGAGT CACAGACCAA CTCATTGGAG TATCAGTTCG CAATCGGTAG

4401  TGAATTAAGA ATCTCCCTAA CTATTTCATT TCAGAACCTT TATGATAATG

4451  TCTTGAAAGA GGAGGAGCAA ATCAGCTGAA AAATATGATC GATCCATGCA

4501  GATCCTTCAC GATTCAGGTT CACGCATCAG ACGTCGTTCG TGAAGCGGCA

4551  TCTGGGATCA TTCTCAAGCA CCCCTGGGCT CAGATGGATC GTGAGTTATC

4601  AATCTCCGAA TACATGCTTG TTTTTTATTC TTGCAACTGG CCTAGCTGTT
```

Figure 8D

```
4651   CCAATTCAAT CCATATTTTT TGAAAAAAAA AATATTCATG CCGTGTTTGT

4701   TGTTAGGTAG CATTCTTCAG GCAGTTCTTT GGGTCCGTCA CCAAGGTGGA

4751   CTACCTGACC ATGCGGCAAG GCTTCATCAA TGTATATACT AATCAAACCT

4801   GACCAATTCA ACATTGATGA TGCAAACAGA GACCAGGTTT TTTTTTTCGA

4851   GTGTGCATTG AGTAATGGTT TTAGCTTCTT CTCTTTTGCA GGCGCATTTG

4901   TCGCAGAATA GCAAGTTCGA CTTCCACAAA TACATCAAGA GGTCTTTGGA

4951   GGACGACTTC AAAGTTGTCG TTGGCATCAG GTCCGTCCTC GCTTTATTAA

5001   TTATAGGACT CTTATATTCA ACATTTTTTT TATAAAGAAA CATATTTAGT

5051   CTCCAGTTGT GTATGTGTAT GTGGATCTTG ACACATTTGG CTGGTTTTGC

5101   AGCCTCCCTC TGTGGTTCGT CGGAATCCTT GTACTCTTCC TCGATATCCA

5151   CGGTAATCCT TGTCCTATTT CATTCTTTTT TTTACTCTCA AAACCTTGTT

5201   CTGAATTGGT CTTATAATCA CCATCGATTT TTTTTCAACT TTTTCCCCGC

5251   GTGTAGGTCT TGGCACACTT ATTTGGATCT CTTTTGTTCC TCTCATCGTA

5301   AGAGCGAAAT TTCCCTGTCC AAAGAAACAG TTAACATAAT TAATTATGCT

5351   TTAATTTATC ATGAAAATTA ATATGATCAT ATAACTAATG AACAAACATT

5401   CATGTGAATG CCACCGTTGT CTCAGATCGT CTTGTTAGTT GGGACCAAGC

5451   TAGAGATGGT GATCATGGAG ATGGCCCAAG AGATACAGGA CAGGGCCACT

5501   GTGATCCAGG GAGCACCTAT GGTTGAACCA AGCAACAAGT ACTTCTGGTT

5551   CAACCGCCCT GACTGGGTCT TGTTCTTCAT ACACCTGACA CTCTTCCATG

5601   TACATGTTTA AAACCTAAAC CTTGCTGCTC AACTACAAAT AGTACTTTAT

5651   CTTTCACAAT TAACACCTAA TTAACTAACA TAGCATCCAT CCATTTGTGG

5701   CTACTGATCG ATGGGACGAC GGATCGATCA TCACCAGAAC GCATTTCAGA

5751   TGGCGCATTT CGTATGGACT ATGGTGTGTA TGCTACTTGC TTAGTTGTTG

5801   CCATTATCAG TTCTTAAGCA AATTAAGTGT GATGCATGCA CTGACTAATG

5851   AGACAAAAAA TGACACAGCT TGTTCATCGA TCTGGTTGTT TTGTGTGTGA

5901   CAGGCAACAC CTGGTCTGAA GAAATGCTTC CATGAAAATA TTTGGCTGAG

5951   CATCGTGGAA GTCATTGTGG GGATCTCTCT TCAGGTGCTA TGCAGCTACA

6001   TCACCTTCCC GCTCTACGCG CTCGTCACAC AGGTGAACAA GCCATTCACA

6051   AATTCTATTA GCCGTTTCTT AATTGATGAC ACTGTTAATT TTTAGACACA

6101   CGTTTTGACC ATTTGTCTTA TTAAAAATAT TTATGTAATT ATCATTTGAG

6151   TTGTTTTATC ACTAAAAGTA CTTTTTAAAT AATTTATATT TTGCATTTGT

6201   ACAATTCTTT TAATAAGATA ATGGTCAAAC ATGTGTCCAA AAGTTAACAG
```

Figure 8E

```
6251   CATCATCTAT TAAGAAAAGG AGGGGTTTTT TTTTTTTGGA ATTTTGCAAA

6301   ATTTGTTCAA AATCAGTCCA AAACCTTTTT TTTTTTCGAA ATTTCAGTTT

6351   CACTACCAGT CCCCATAAAA TGTCTTTTCT TTATTTCCAC AAGATTGAAC

6401   CCATGAGATG CCCTTTGTGT TGGTATGTGT TTTGGCCATC ACTTGCAGAT

6451   GGGATCGAAC ATGAAGAAGA CAATTTTCGA GGAGCAAACG ATGAAGGCGC

6501   TGATGAACTG GAGGAAGAAG GCGATGGAGA AGAAGAAGGT CCGGGACGCC

6551   GACGCGTTCC TGGCGCAGAT GAGCGTCGAC TTCGCGACGC CGGCGTCGAG

6601   CCGGTCCGCG TCGCCGGTGC ACCTGCTGCA GGATCACAGG GCGAGGTCGG

6651   ACGACCCGCC GAGCCCAATC ACGGTGGCCT CACCACCGGC ACCGGAGGAG

6701   GACATGTACC CGGTGCCGGC GGCGGCTGCG TCTCGCCAGC TGCTAGACGA

6751   CCCGCCGGAC AGGAGGTGGA TGGCATCCTC GTCGGCCGAC ATCGCCGATT

6801   CTGATTTTTC CTTCAGCGCA CAACGGTGAC GGGGGCGATC GGTTTCTGTA

6851   TTGATGCTGT ACCAAACATA GGAGTTTAAT ATATATATAA TTGTTACGGT

6901   AAAATCTAAT TATTGTGCGC GCACTTATAT TAGTCTTATA GCGCGACTGG

6951   TTCGTGATTA GACAAGGTGA TGCATGCTGT TTAGTTATAA AGGATATCAG

7001   CGCAGCTAAA AAAACTTACT CCCTACTTAA TAGATGACCT CGTTGATTTT

7051   TAACATTATT CGTCTTATTT AAAAAATTTA TGCAAATGTT TAAAACATAA

7101   ATCATGCTTA AAGTACTTTT AGTGATAAAA CAACTTACAA CAAAATAAAT

7151   TATAGTTACC TAATTTTTTT TAATAAATCG AATGG
```

Figure 9A

```
   1   TTATACCATG  TGAGAAAGGC  TGGAAGCATA  TGCTCTTAGC  AGGGACGCGT

  51   GCATGTTTAT  ATAGGAGGCA  TAAGCCGAAG  AGATATACAT  GAGGAGAGGT

 101   TTAAGATCAG  TCTATCTTAT  TTACAGTTTA  AACACAAGGA  GATAGAAAGA

 151   GATCCTAACC  TACACATGTT  ATACAAGTCA  CGTATAATAC  AAGAGTTATT

 201   TCGTCTAACA  CCCTCCCCTC  TGATATGATA  AGTCGCCGGG  AGAGAGAGAG

 251   AGTGTGTGGC  TGCCCTCGCT  GCACTGCACG  CACATGTTTA  CTTCTCCGAC

 301   TGAAACCACG  GTGAAACCGG  CGGCGGTGTC  GCACTCCCCT  GACTTTCCTC

 351   GCCGGGGTCC  CGTCCGGACA  ATTAAACCGT  CTGTACCTGC  CGGGCGTCGA

 401   CCCGATCGTG  ATGTGGCGCC  GCTTTGTCTG  CAGCGAGCTG  CGTGGCCGAT

 451   GGCAACAAAA  CTGCGGTCAC  ATACATGCAT  ACCCCGCATA  CCCCGACGCT

 501   CACCAGTAAG  TAGGCTGTGG  TGCGGCACCA  CGGGCTCGCC  GCCATTCATG

 551   CCATGCATGG  GCCACCCGCC  GGCGAAACCG  CGGCGCTGCT  GCCTGCCACC

 601   CCGCCGCCGT  TGACGAAGAC  TTCGCCCGGC  CATCCATAAA  AGCATGCATG

 651   GCTTGCTCTC  ACCGGTCCGG  CCACACACAC  CACACTTCAC  TTCGCCATTC

 701   GCACCACCGA  GAGCGTAGCG  TAACGTGTGT  TTGAAGTCCT  ACCATTAATT

 751   TTGCTGGATC  GATGGCTGGG  CCGGCGGGAG  GTCGGGAGCT  GTCGGACACG

 801   CCGACGTGGG  CGGTGGCGGT  AGTCTGCGCC  GTCATGATAC  TCGTCTCCGT

 851   CGCCATGGAG  CACGCGCTCC  ACAAGCTCGG  CCACGTACGT  GCTCTCGGTT

 901   CACTAGTGCT  TAACTGTTTT  TGATGTTTTC  GGGCGTGTTT  GGTAGCCTGC

 951   ATGGAGAGTG  TATGAGCCCA  AAAGTTCCCT  CCCCGACCCA  CTTTTCGCTG

1001   TTTGGTAGGG  TGTATGGGCT  GAGGAGAGCA  TGCATCAACT  GATGCAAAAA

1051   GGGCCTCAGC  ATAGCTGAGC  CCAGCACCCC  CGCAGAGGCG  AGCTGAGGCG

1101   AGTTATGCTG  AGCCCATGCA  CCCTCGCCCC  GTCGCCCCGT  CGCCCCGTCG

1151   CTCCCCCCCT  GCACCTCTTC  CTCCTCCCTC  TTCCTACCAA  ACACAGTCTC

1201   ATCCAAACAT  GTAACAACAC  ATGCATGACC  ACCAAACAAC  TGAAGATGAA

1251   TGTATTCATC  ATGTCTATAC  TTACCATGCA  TCAACAGGGA  ACAACTATGC

1301   TAGGGTGAGA  ACAGCTGCCA  AACACACCCG  TGCACCTACT  CATGCTGTGC

1351   CGGCGCTGGC  GTACGTGTGC  AGTGGTTCCA  CAAGTGGCGC  AAGAAGGCCC

1401   TGGGGGAGGC  GCTGGAGAAG  ATGAAGGCGG  AGCTCATGCT  GGTGGGCTTC
```

Figure 9B

```
1451   ATATCCCTGC TCCTCATCGT CACGCAGGAT CCCGTCTCCA GGATCTGCAT

1501   CTCCAAGGAG GCCGGCGAGA AGATGCTCCC GTGCAAGCCT TACGACGGCG

1551   CCGGCGGTGG CAAAGGCAAG GACAATCACC GGAGGCTTCT CTGGCTCCAA

1601   GGCGAGAGCG AGACCCACCG CCGGTTCCTG GCTGCCCCGG CCGGAGTGGA

1651   CGTCTGCGCC AAACAGGTGA GCACCTAGCG TCGCCACAAA CCACAAACTA

1701   GCTAATGAGC ATGGACCTGA ATTTCTTCTC TTCTTGGCTT GGCTTGACTA

1751   AATTGGTTGT GCAGGGCAAG GTGGCGCTGA TGTCAGCGGG AAGCATGCAC

1801   CAACTGCACA TATTCATCTT CGTGCTCGCC GTCTTCCACG TCTTGTACAG

1851   CGTCGTCACC ATGACCCTAA GCCGTCTCAA AGTGAGCATC ATACTCGAGC

1901   TGTTTGTCAA TAATCCTTGG TTTCCAATCC AATTCCAAAG CTGGCACTGA

1951   TCCTGCTCCG GCTTCCTGCA GATGAAGCAA TGGAAGAAGT GGGAGTCGGA

2001   GACCGCCTCG CTGGAGTATC AGTTCGCGAA TGGTCAGCTT CAACTTTTCT

2051   TACTGAAACC GGATGCATTT ACAACAAACG CACGCACGAT CAATCATCAC

2101   AGTGTGAGCC GATACGTTGA ACCGATTGAA TCCTCGCAGA TCCATCGCGG

2151   TGCCGGTTCA CGCACCAGAC GACGTTGGTG AGGCGGCACC TGGGCCTCTC

2201   CAGCACCCCC GGCGTCAGAT GGGTGGTGGC CTTCTTCAGG CAGTTCTTCA

2251   CGTCGGTGAC CAAGGTGGAC TACCTGACCT TGCGGCAGGG CTTCATCAAC

2301   GCGCATCTCT CGCAGGGCAA CAGGTTCGAC TTCCACAAGT ACATCAAGAG

2351   GTCGTTGGAG GACGACTTCA AAGTCGTCGT CCGCATCAGG TACGCGCCAT

2401   TCCTTTCTCT GCACAAATTA ATACATCCAC CACCACATAG GTAGATAGAT

2451   AGATCGATAG ATAGATTATA CAAGTGCCGG TACGTACGTA CGTCTCATAT

2501   GATCTTGACA CATCTGTCCT CTTGCCGCAG TCTCAAGCTC TGGTTCGTGG

2551   CGGTCCTCAT CCTCTTCCTT GATTCGACG GTAGCCGCCT TGTCCATGCC

2601   CTGCTCGCCC TCTCCTCCGC TTCTCTCCAT AATTTGTGAA CTTGTCCCGT

2651   ATATAACCAC ACCACCGTCG TCTTCTCGCA GGGATCGGCA CTCTTCTCTG

2701   GATGTCCGTG GTTCCTCTCG TGGTAAGTCC ACAATTTGAA TAGACAACCT

2751   GTCCAATTGT GATGTACAGT ACCTCCAAAC TTAATTAACA TGTCATTTGC

2801   TGATGTCTTG CGTGTAACAT TAGATCCTCT TGTGGGTTGG GACCAAGCTG

2851   GAGATGGTGA TCATGGAGAT GGCCCAGGAG ATCCATGACC GGGAGAGCGT

2901   CGTCAAGGGT GCTCCCGCCG TCGAGCCCAG CAACAAGTAC TTCTGGTTCA

2951   ACCGGCCTGA CTGGGTCCTC TTCCTCATGC ACCTCACACT CTTCCAGAAC

3001   GCGTTTCAGA TGGCTCATTT CGTGTGGACA GTGGTACGTA CAAGTACTTG
```

Figure 9C

3051   TCACTTCACT TAGGCTAACT CCAACAAACG ACCCCAAATT AATGGTCCGT

3101   CGCGTCTGTT TGGGGTATGT TTGGGGTAAA CGGACACAAA ACTCAATCCA

3151   ACGCGCGGTA GCAAACGAAC GTTTTTCCGT ACGTTTTCGT CCGCTTTCGC

3201   CCCATCCCAG CCCAAATTCG TTGACGTTGT TGCATCGCAG GCCACGCCCG

3251   GCTTGAAGAA ATGCTACCAC GAGAAAATGG CAATGAGCAT CGCCAAGGTC

3301   GTGCTGGGGG TAGCCGCCCA GATCTTGTGC AGCTACATCA CCTTCCCGCT

3351   CTACGCGCTC GTCACGCAGA TGGGCTCACA CATGAAGAGA AGCATCTTCG

3401   ACGAGCAGAC GGCCAAGGCG CTGACCAACT GGCGAAAGAT GGCCAAGGAG

3451   AAGAAGAAGG CCCGAGACGC GGCCATGCTG ATGGCGCAGA TGGGCGGCGG

3501   CGCGACGCCG AGCGTCGGCT CGTCGCCGGT GCACCTGCTC CACAAGGCCG

3551   GGGCGCGGTC CGACGACCCC CAGAGCGTGC CGGCGTCCCC GAGGGCCGAG

3601   AAGGAAGGCG GCGGCGTGCA GCATCCGGCG CGCAAGGTAC CTCCTTGTGA

3651   CGGGTGGAGG TCGGCCTCGT CGCCGGCGCT CGACGCTCAC ATCCCCGGTG

3701   CAGATTTTGG CTTCAGCACG CAACGTTGAC CGATCAGACA AGTTCCTTTT

3751   TTTTTCGGTG AATAGAAGCG TATCATTTCA TTGATAGACA GTAGAAATTA

3801   CAGGAATGGC TGTCCTACTA CTATGTACAC AAGGGCACAG CAAAGGATCA

3851   TTGATCTTGT TACAAGAGCA GTAGAAAGGG ATTGCTCTCC ATTGATCTTG

3901   TTAAGTTGTA TGTCACAAAT TGTTGCAGAA AAAGTGTAT GTCATCCCAA

3951   CCAAGAGCTG AGTTTGTGAT GATTCGTGCA ATAAGAATTG CAAGTTTCAC

4001   CGAGTCAAAA ATGAAGCTTC TAAGTACGCA CCAACCAACG GACTCTTTCA

4051   TCTCAACAAA AGAACTGTAA ATGGCAATAA TTCTGATAAC ATCGGAAGGG

4101   AGCTC

Figure 10

```
   1  ATGGCAGGTG GGAGATCGGG ATCGCGGGAG TTGCCGGAGA CGCCGACGTG

  51  GGCGGTGGCC GTCGTCTGCG CCGTCCTCGT GCTCGTCTCC GCCGCCATGG

 101  AGCACGGCCT CCACAACCTC AGCCATAAAA CCACCGCAGA AGTTCTCATA

 151  TTTCTTGTCC TATCTGCACT TGCAGAGCTG ATGCTGCTGG GCTTCATATC

 201  CCTGCTTCTC ACCGTGGCAC AGGCGCCCAT CTCCAAGATC TGCATCCCCA

 251  AGTCGGCTGC CAACATCTTG TTGCCGTGCA AGGCAGGCCA AGATGCCATC

 301  GAAGAAGAAG CAGCAAGTGG TCGCCGGTCC TTGGCCGGCG CCGGCGGCGG

 351  GGACTACTGC TCGAAATTCG ATGGCAAGGT GGCGCTGATG TCGGCAAAGA

 401  GCATGCACCA GCTGCACATT TTCATCTTCG TGCTCGCCGT GTTCCATGTT

 451  ACCTACTGCA TCATCACCAT GGGTTTAGGG CGCCTCAAAA TGAAGAAATG

 501  GAAGAAGTGG GAGTCACAGA CCAACTCATT GGAGTATCAG TTCGCAATCG

 551  ATCCTTCACG ATTCAGGTTC ACGCATCAGA CGTCGTTCGT GAAGCGGCAT

 601  CTGGGATCAT TCTCAAGCAC CCCTGGGCTC AGATGGATCG TAGCATTCTT

 651  CAGGCAGTTC TTTGGGTCCG TCACCAAGGT GGACTACCTG ACCATGCGGC

 701  AAGGCTTCAT CAATGCGCAT TTGTCGCAGA ATAGCAAGTT CGACTTCCAC

 751  AAATACATCA AGAGGTCTTT GGAGGACGAC TTCAAAGTTG TCGTTGGCAT

 801  CAGCCTCCCT CTGTGGTTCG TCGGAATCCT TGTACTCTTC CTCGATATCC

 851  ACGGTCTTGG CACACTTATT TGGATCTCTT TTGTTCCTCT CATCATCGTC

 901  TTGTTAGTTG GGACCAAGCT AGAGATGGTG ATCATGGAGA TGGCCCAAGA

 951  GATACAGGAC AGGGCCACTG TGATCCAGGG AGCACCTATG GTTGAACCAA

1001  GCAACAAGTA CTTCTGGTTC AACCGCCCTG ACTGGGTCTT GTTCTTCATA

1051  CACCTGACAC TCTTCCATAA CGCATTTCAG ATGGCGCATT TCGTATGGAC

1101  TATGGCAACA CCTGGTCTGA AGAAATGCTT CCATGAAAAT ATTTGGCTGA

1151  GCATCGTGGA AGTCATTGTG GGGATCTCTC TTCAGGTGCT ATGCAGCTAC

1201  ATCACCTTCC CGCTCTACGC GCTCGTCACA CAGATGGGAT CGAACATGAA

1251  GAAGACAATT TTCGAGGAGC AAACGATGAA GGCGCTGATG AACTGGAGGA

1301  AGAAGGCGAT GGAGAAGAAG AAGGTCCGGG ACGCCGACGC GTTCCTGGCG

1351  CAGATGAGCG TCGACTTCGC GACGCCGGCG TCGAGCCGGT CCGCGTCGCC

1401  GGTGCACCTG CTGCAGGTCA CAGGGCGGGT CGGACGCCCG CCGAGCCCAA

1451  TCACGGTGGC CTCACCACCG GCACCGGAGG AGGACATGTA CCCGGTGCCG

1501  GCGGCGGCTG CGTCTCGCCA GCTGCTAGAC GACCCGCCGG ACAGGAGGTG

1551  GATGGCATCC TCGTCGGCCG ACATCGCCGA TTCTGATTTT TCCTTCAGCG

1601  CACAACGGTG A
```
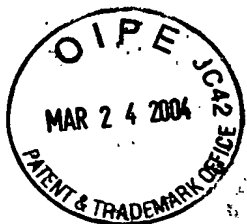
Figure 11

```
   1  ATGGCTGGGC CGGCGGGAGG TCGGGAGCTG TCGGACACGC CGACGTGGGC

  51  GGTGGCGGTA GTCTGCGCCG TCATGATACT CGTCTCCGTC GCCATGGAGC

 101  ACGCGCTCCA CAAGCTCGGC CACTGGTTCC ACAAGTGGCG CAAGAAGGCC

 151  CTGGGGGAGG CGCTGGAGAA GATGAAGGCG GAGCTCATGC TGGTGGGCTT

 201  CATATCCCTG CTCCTCATCG TCACGCAGGA TCCCGTCTCC AGGATCTGCA

 251  TCTCCAAGGA GGCCGGCGAG AAGATGCTCC CGTGCAAGCC TTACGACGGC

 301  GCCGGCGGTG GCAAAGGCAA GGACAATCAC CGGAGGCTTC TCTGGCTCCA

 351  AGGCGAGAGC GAGACCCACC GCCGGTTCCT GGCTGCCCCG GCCGGAGTGG

 401  ACGTCTGCGC CAAACAGGGC AAGGTGGCGC TGATGTCAGC GGGAAGCATG

 451  CACCAACTGC ACATATTCAT CTTCGTGCTC GCCGTCTTCC ACGTCTTGTA

 501  CAGCGTCGTC ACCATGACCC TAAGCCGTCT CAAAATGAAG CAATGGAAGA

 551  AGTGGGAGTC GGAGACCGCC TCGCTGGAGT ATCAGTTCGC GAATGATCCA

 601  TCGCGGTGCC GGTTCACGCA CCAGACGACG TTGGTGAGGC GGCACCTGGG

 651  CCTCTCCAGC ACCCCCGGCG TCAGATGGGT GGTGGCCTTC TTCAGGCAGT

 701  TCTTCACGTC GGTGACCAAG GTGGACTACC TGACCTTGCG GCAGGGCTTC

 751  ATCAACGCGC ATCTCTCGCA GGGCAACAGG TTCGACTTCC ACAAGTACAT

 801  CAAGAGGTCG TTGGAGGACG ACTTCAAAGT CGTCGTCCGC ATCAGTCTCA

 851  AGCTCTGGTT CGTGGCGGTC CTCATCCTCT TCCTTGATTT CGACGGGATC

 901  GGCACTCTTC TCTGGATGTC CGTGGTTCCT CTCGTGATCC TCTTGTGGGT

 951  TGGGACCAAG CTGGAGATGG TGATCATGGA GATGGCCCAG GAGATCCATG

1001  ACCGGGAGAG CGTCGTCAAG GGTGCTCCCG CCGTCGAGCC CAGCAACAAG

1051  TACTTCTGGT TCAACCGGCC TGACTGGGTC CTCTTCCTCA TGCACCTCAC

1101  ACTCTTCCAG AACGCGTTTC AGATGGCTCA TTTCGTGTGG ACAGTGGCCA

1151  CGCCCGGCTT GAAGAAATGC TACCACGAGA AAATGGCAAT GAGCATCGCC

1201  AAGGTCGTGC TGGGGGTAGC CGCCCAGATC TTGTGCAGCT ACATCACCTT

1251  CCCGCTCTAC GCGCTCGTCA CGCAGATGGG CTCACACATG AAGAGAAGCA

1301  TCTTCGACGA GCAGACGGCC AAGGCGCTGA CCAACTGGCG AAAGATGGCC

1351  AAGGAGAAGA AGAAGGCCCG AGACGCGGCC ATGCTGATGG CGCAGATGGG

1401  CGGCGGCGCG ACGCCGAGCG TCGGCTCGTC GCCGGTGCAC CTGCTCCACA

1451  AGGCCGGGGC GCGGTCCGAC GACCCCCAGA GCGTGCCGGC GTCCCCGAGG

1501  GCCGAGAAGG AAGGCGGCGG CGTGCAGCAT CCGGCGCGCA AGGTACCTCC

1551  TTGTGACGGG TGGAGGTCGG CCTCGTCGCC GGCGCTCGAC GCTCACATCC

1601  CCGGTGCAGA TTTTGGCTTC AGCACGCAAC GTTGA
```

Figure 12A

```
   1   GTTGGTACAT AAAAGACTCT TCCTTTGTCT GTTTTTTGTT CCCAGATTCA

  51   TCTTTACTTA TTGACTAAAT TCTCTCTGGT GTGAGAAGTA AAATGGGTCA

 101   CGGAGGAGAA GGGATGTCGC TTGAATTCAC TCCGACGTGG GTCGTCGCCG

 151   GAGTTTGTAC GGTCATCGTC GCGATTTCAC TGGCGGTGGA GCGTTTGCTT

 201   CACTATTTCG GTACTGTTCT TAAGAAGAAG AAGCAAAAAC CCCTTTACGA

 251   AGCCCTTCAA AAGGTTAAAG AAGAGCTGAT GTTGTTAGGG TTTATATCGC

 301   TGTTACTGAC GGTATTCCAA GGGCTCATTT CCAAATTCTG TGTGAAAGAA

 351   AATGTGCTTA TGCATATGCT TCCATGTTCT CTCGATTCAA GACGAGAAGC

 401   TGGGGCAAGT GAACATAAAA ACGTTACAGC AAAAGAACAT TTTCAGACTT

 451   TTTTACCTAT TGTTGGAACC ACTAGGCGTC TACTTGCTGA ACATGCTGCT

 501   GTGCAAGTTG GTTACTGTAG CGAAAAGGGT AAAGTACCAT TGCTTTCGCT

 551   TGAGGCATTG CACCATCTAC ATATTTTCAT CTTCGTCCTC GCCATATCCC

 601   ATGTGACATT CTGTGTCCTT ACCGTGATTT TTGGAAGCAC AAGGATTCAC

 651   CAATGGAAGA AATGGGAGGA TTCGATCGCA GATGAGAAGT TTGACCCCGA

 701   AACAGCTCTC AGGAAAAGAA GGGTCACTCA TGTACACAAC CATGCTTTTA

 751   TTAAAGAGCA TTTTCTTGGT ATTGGCAAAG ATTCAGTCAT CCTCGGATGG

 801   ACGCAATCCT TTCTCAAGCA ATTCTATGAT TCTGTGACGA AATCAGATTA

 851   CGTGACTTTA CGTCTTGGTT TCATTATGAC ACATTGTAAG GGAAACCCCA

 901   AGCTTAATTT CCACAAGTAT ATGATGCGCG CTCTAGAGGA TGATTTCAAA

 951   CAAGTTGTTG GTATTAGTTG GTATCTTTGG ATCTTTGTCG TCATCTTTTT

1001   GCTGCTAAAT GTTAACGGAT GGCACACATA TTTCTGGATA GCATTTATTC

1051   CCTTTGCTTT GCTTCTTGCT GTGGGAACAA AGTTGGAGCA TGTGATTGCA

1101   CAGTTAGCTC ATGAAGTTGC AGAGAAACAT GTAGCCATTG AAGGAGACTT

1151   AGTGGTGAAA CCCTCAGATG AGCATTTCTG GTTCAGCAAA CCTCAAATTG

1201   TTCTCTACTT GATCCATTTT ATCCTCTTCC AGAATGCTTT TGAGATTGCG
```

Figure 12B

```
1251   TTTTTCTTTT GGATTTGGGT TACATACGGC TTCGACTCGT GCATTATGGG

1301   ACAGGTGAGA TACATTGTTC CAAGATTGGT TATCGGGGTC TTCATTCAAG

1351   TGCTTTGCAG TTACAGTACA CTGCCTCTTT ACGCCATCGT CTCACAGATG

1401   GGAAGTAGCT TCAAGAAAGC TATATTCGAG GAGAATGTGC AGGTTGGTCT

1451   TGTTGGTTGG GCACAGAAAG TGAAACAAAA GAGAGACCTA AAAGCTGCAG

1501   CTAGTAATGG AGACGAAGGA AGCTCTCAGG CTGGTCCTGG TCCTGATTCT

1551   GGTTCTGGTT CTGCTCCTGC TGCTGGTCCT GGTGCAGGTT TTGCAGGAAT

1601   TCAGCTCAGC AGAGTAACAA GAAACAACGC AGGGGACACA AACAATGAGA

1651   TTACACCTGA TCATAACAAC TGAGCAGAGA TATTATCTTT TCCATTTAGA

1701   GGATCATCAT CAGATTTTAG CTTCAAGGTC CGGTTTTGTG GTTTATACAT

1751   AAGTTATAGT GACTTGATTT TTTTGTTTTG TTACAAAGTT ACCATCTTTG

1801   GATTAGAATT GGGAAATTGA ATCTGTTTGT ATATTGTATT ATTTGGAACA

1851   TTGTGGATGC CCATGGATAT GTTTCTGTTC
```

Figure 13

```
  1    MAGGRSGSRE  LPETPTWAVA  VVCAVLVLVS  AAMEHGLHNL  SHKTTAEVLI

 51    FLVLSALAEL  MLLGFISLLL  TVAQAPISKI  CIPKSAANIL  LPCKAGQDAI

101    EEEAASGRRS  LAGAGGGDYC_SKFDGKVALM  SAKSMHQLHI  FIFVLAVFHV

151    TYCIITMGLG  RLKMKKWKKW  ESQTNSLEYQ  FAIDPSRFRF  THQTSFVKRH

201    LGSFSSTPGL  RWIVAFFRQF  FGSVTKVDYL  TMRQGFINAH  LSQNSKFDFH

251    KYIKRSLEDD  FKVVVGISLP  LWFVGILVLF  LDIHGLGTLI  WISFVPLIIV

301    LLVGTKLEMV  IMEMAQEIQD  RATVIQGAPM  VEPSNKYFWF  NRPDWVLFFI

351    HLTLFHNAFQ  MAHFVWTMAT  PGLKKCFHEN  IWLSIVEVIV  GISLQVLCSY

401    ITFPLYALVT  QMGSNMKKTI  FEEQTMKALM  NWRKKAMEKK  KVRDADAFLA

451    QMSVDFATPA  SSRSASPVHL  LQVTGRVGRP  PSPITVASPP  APEEDMYPVP

501    AAAASRQLLD  DPPDRRWMAS  SSADIADSDF  SFSAQR*
```

Figure 14

```
  1    MAGPAGGREL  SDTPTWAVAV  VCAVMILVSV  AMEHALHKLG  HWFHKWRKKA

 51    LGEALEKMKA  ELMLVGFISL  LLIVTQDPVS  RICISKEAGE  KMLPCKPYDG

101    AGGGKGKDNH  RRLLWLQGES  ETHRRFLAAP  AGVDVCAKQG  KVALMSAGSM

151    HQLHIFIFVL  AVFHVLYSVV  TMTLSRLKMK  QWKKWESETA  SLEYQFANDP

201    SRCRFTHQTT  LVRRHLGLSS  TPGVRWVVAF  FRQFFTSVTK  VDYLTLRQGF

251    INAHLSQGNR  FDFHKYIKRS  LEDDFKVVVR  ISLKLWFVAV  LILFLDFDGI

301    GTLLWMSVVP  LVILLWVGTK  LEMVIMEMAQ  EIHDRESVVK  GAPAVEPSNK

351    YFWFNRPDWV  LFLMHLTLFQ  NAFQMAHFVW  TVATPGLKKC  YHEKMAMSIA

401    KVVLGVAAQI  LCSYITFPLY  ALVTQMGSHM  KRSIFDEQTA  KALTNWRKMA

451    KEKKKARDAA  MLMAQMGGGA  TPSVGSSPVH  LLHKAGARSD  DPQSVPASPR

501    AEKEGGGVQH  PARKVPPCDG  WRSASSPALD  AHIPGADFGF  STQR*
```

Figure 15

```
  1   MGHGGEGMSL   EFTPTWVVAG   VCTVIVAISL   AVERLLHYFG   TVLKKKKQKP

 51   LYEALQKVKE   ELMLLGFISL   LLTVFQGLIS   KFCVKENVLM   HMLPCSLDSR

101   REAGASEHKN   VTAKEHFQTF   LPIVGTTRRL   LAEHAAVQVG   YCSEKGKVPL

151   LSLEALHHLH   IFIFVLAISH   VTFCVLTVIF   GSTRIHQWKK   WEDSIADEKF

201   DPETALRKRR   VTHVHNHAFI   KEHFLGIGKD   SVILGWTQSF   LKQFYDSVTK

251   SDYVTLRLGF   IMTHCKGNPK   LNFHKYMMRA   LEDDFKQVVG   ISWYLWIFVV

301   IFLLLNVNGW   HTYFWIAFIP   FALLLAVGTK   LEHVIAQLAH   EVAEKHVAIE

351   GDLVVKPSDE   HFWFSKPQIV   LYLIHFILFQ   NAFEIAFFFW   IWVTYGFDSC

401   IMGQVRYIVP   RLVIGVFIQV   LCSYSTLPLY   AIVSQMGSSF   KKAIFEENVQ

451   VGLVGWAQKV   KQKRDLKAAA   SNGDEGSSQA   GPGPDSGSGS   APAAGPGAGF

501   AGIQLSRVTR   NNAGDTNNEI   TPDHNN*
```

Figure 16A

Figure 16B

```
Hvmlo-H1    AQILCSYITF  PLYALVTQMG  SHMKRSIFDE  QTAKALTNWR  KMAKEKKAR   DAAMLMAQMG
Mlo         LQFLCSYMTF  PLYALVTQMG  SNMKRSIFDE  QTSKALTNWR  NTAKEKKVR   DTDMLMAQMI
Osmlo-H1m   LQVLCSYITF  PLYALVTQMG  SNMKKTIFEE  QTMKALMTNWR KKAMEKKVR   DADAFLAQMS
Atmlo-H1    HQVLCSYSTL  PLYAIVSQMG  SSFKKAIFEE  NVQVGLVGWA  QKVQKRDLK   AAASNGDEGS
Consensus   -Q-LCSY-TF  PLYALVTQMG  S-MK--IF-E  QT-KAL-NMR  -AKEKKK-R   -DA---AQM
```

```
Hvmlo-H1    GGAT........  .PSVGSSPV   HLLHKAGARS  DDPQSVPASP  RAEKEG.-DMY  GGVQHPARK
Mlo         GDAT.PSRGSS   PMPSRGSSPV  HLLHKGMGRS  DDPQSAPTSP  RTQQEARDMY   PVVVAHPVHR
Osmlo-H1m   VD..FAT       PASSRSASPV  HLLQ-.VTGRV GRPPSPITVA  SPPAPEEDMY   PVPAAAASRQ
Atmlo-H1    SQAG.GPDSG    SGSAPAAGP.  GAGFA       GIQLSRVTRN  NAGDTNNEIT   PDHNN*
Consensus   --A-          -S-         HLL--GR     P--T-       -AKEKK--     P
```

```
Hvmlo-H1    V..PPCDGWR   SASSPALDAH  IPGADFGFST  QR*
Mlo         L..NPNDRRR   SASSSALEAD  IPSADFSSQ   G*
Osmlo-H1m   LLDDPPDRRW   MASSS       IADSDFSFSA  QR*
Atmlo-H1    ...
Consensus   -P-D-        -ASS-       I-DF-FS
```